APPLICATION NO. 09/846,410

TITLE OF INVENTION: Multiple Data Rate Hybrid Walsh Codes for CDMA

INVENTOR: Urbain A. von der Embse

Clean copy of ABSTRACT OF THE DISCLOSURE

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ABSTRACT OF THE DISCLOSURE

A method and system using the fast encoding and decoding of hybrid Walsh CDMA and generalized hybrid Walsh CDMA codes for simultaneous transmission of multiple data rate users with the different data rate groups of users separated in the sequency domain of these complex CDMA channelization codes. Sequency is the average rate of phase angle rotations of the code vectors and for hybrid Walsh codes sequency is in a 1-to-1 correspondence with frequency for the discrete Fourier transform codes. Hybrid Walsh codes are derived from lexicographic permutations of the real Walsh and can take values {1,j,-1,-j}. Generalized hybrid Walsh codes are orthogonal and quasi-orthogonal complex codes derived from tensor (Kronecker) product construction, direct product construction, and functional combining of the plurality of codes including the hybrid Walsh and discrete Fourier transform codes.